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## WHY THE MOCKING BIRDS LEFT NEW JERSEY—A GEOLOGICAL REASON.<sup>1</sup>

BY SAMUEL LOCKWOOD, PH. D.

Is it not "past the infinite of thought?" Even though expressed in numbers, who has a mental grasp of the stellar distances? And equally inadequate is the time conception of any working æon taken by nature in sculpturing the features of our Mother Earth. Still, though we may do no better than conjecture the time of any special fashioning, so dim is the distance, yet the geologic record makes clear the fact that the sea coast of New Jersey formerly extended very much farther into the Atlantic than it does to-day. In taking soundings off the coast the lead will drop suddenly into deep gorges in the ocean bed, thus revealing, as it were, an oceanic valley nearly parallel to the coast line. Though about a hundred miles south-east of the present mouth of the Hudson, this seems to denote the ancient outlet of the river into the sea. All this is in accord with the facts known concerning the subsidence of the New Jersey coast. Even when Hudson saw them, the Highlands of Navesink were somewhat higher than now, hence with the Squan Highlands, the first land sighted by homing vessels, were visible further out at sea. These

<sup>1</sup>Read at the Ninth Congress of the American Ornithologists' Union in New York, Nov. 16, 1891.

Monmouth Highlands mark the extreme south and north points of the county coast line; for the rest, the New Jersey shore is mainly a sandy flat, which formerly was thickly fringed with evergreens, much of it being cedar and cypress, though the prominences mentioned were densely wooded with deciduous trees.

In the southern part of the State exists a curious industry—the mining for cedar—exhuming from their swampy burials the white cedars, *Cupressus thyoides*. Some of these noble trees much exceeded three feet in diameter, with the timber perfectly sound. “The lay” of these uprooted trees indicates the devastation probably of extraordinary cyclones occurring at immense intervals of time, thus leveling one forest upon another that had been thrown long before. Even the cedars standing there to-day are a growth over their long buried ancestors. Of two at least of these buried forests beneath the present growth the evidence is indisputable. Counting the season rings some of these exhumed trees must have taken 1500 and possibly 2000 years to grow. But I am not especially concerned with the question of time—it is the fact of subsidence.

And this action is still in progress. Nay, some notable instances there are which present phenomena appealing to our eyes. On the south side of Raritan Bay, or rather Keyport Bay, which is simply an indenture of Raritan, is a clay bluff that in my own recollection has lost much in altitude. Standing on this eminence some ten or twelve feet higher than the line of high tide, I have seen at times of very low tide, in the distance, stumps of trees, in the same position in which they were left by the woodman’s axe when he cut down the forest or grove which grew on that bluff when it reached much farther seaward than now. And perhaps even stranger still, a little north of this, and something nearer the shore, I once saw a great number of broken bricks and a well-curb, the remains, as I learned, of a brick yard, which, like the ancient bluff, had also gone to sea. But I will leave this for a moment.

During a residence of many years at Keyport, N. J., which is not more than two miles from the bluff, I had cherished a little grove of native saplings. They were all seedlings and self-planted. There were scrub oaks, pines, persimmons and a group of bilsteds, or gum trees.

The last attained a considerable height, and all together made a dense covert, in which I took great delight. My pleasure was enhanced by its being a resort for robins, catbirds and some smaller birds. I had thus some good bird music, especially mornings and evenings. It was a summer eve in 1882 when a *Mimus polyglottus* took possession of my cherished grove and opened with a budget of bird music which astonished me. His répertoire was so voluminous and of such variety; indeed, it was a mélange of bird song. The voice was ringing and clear with a quality which I can only call golden. The performance was certainly snatchy, but so rollicking, rapid and impromptu like. The strange thing appeared to me a phenomenon—an avian improvisatoire gone stark mad. Such a bubbling stream of ornithic song—such reckless impetuosity, such phonic exuberance, such imperious audacity of utterance—this defiant monopolist of bird music held me enthralled. It was the first time I had ever heard a wild mocker in the woods. The wonderful creature regaled me in the same grove for six consecutive evenings, then was heard no more. The impression was made on me that my robins and catbirds were also profoundly affected, for on each evening when this grand maestro sang they observed that respectful silence which is the homage due to superiority.

This incident set me upon inquiry. I found an old man who was born in the last century—a native who had spent his entire life near the bluffs already mentioned. In the parlance of the day “we interviewed” him; hence the dialogue as nearly as can be must be reported.

“How long have you lived in these parts?”

“All my life. Leastwise was never away long at a time.”

“Did you ever know of any mocking birds about here?”

“Not of late years, but plenty of ’em when I was a lad.

Many's the time I've gone nesting for them in the cedars that used to be yonder."

"What do you mean by the cedars that used to be yonder?"

"On the bluffs just over there (pointing to the Bay). Sixty year ago that bank was a good deal higher than now, and reached a sight further into the Bay, though the tide comes up just as close as it ever did. But there's a mighty big change there. There used to be a thick forest of red cedar on the bluff, and the mockers, a plenty of them, built there every summer, and there was no trouble in finding a few nests. But there's not been a single cedar there for many years—just how long I disremember. You see the bluff got going to sea so fast they had to cut the cedars to save them. You can see the stumps yet at almost any neap tide. It 'most beats belief that the bluffs ever reached so far as them stumps. Why in my time a pretty good farm has gone off to sea. There used to be a brick yard—that has gone off too. It lay a little north of them cedars, and something can be seen of it when the tide suits. Old Auntie Willets, now dead and gone, used to milk the cows along side of what we called the black rock. That's gone too, and I should think it has sunk considerable, for it's little more than the top of it that one can see at neap tide."

I was surprised at the amount of geology I was abstracting from my informant, and felt that he was getting away from the subject in hand, so I asked: "Have you seen any mocking birds in these parts of late years?"

"Not one in many years as I can remember. The woods don't seem to favor them now. In the time of the cedars they were plenty."

To the old man the word "subsidence" incautiously used by me had no meaning. He had a reason of his own. "Naturally the sea was uprising, sort of overflow on the land. Was it not all the time receiving the waters of all the rivers in the world without any let-up whatever?"

It was some thirty years ago, perhaps more, when I accompanied the late Prof. George H. Cook, the State Geologist, in an inspection of the entire south side of Raritan Bay, my

recollection is that the Professor estimated the present subsid-ing as proceeding at the rate of a vertical half inch in a year, and the Doctor had gathered other very interesting data, such as the change of level of tide-water mills. The rate stated is certainly enormous when compared with the time taken to produce the subsidence of the cedar swamps or mines.

The cypress and the cedar, also the arbor-vitæ, but especially the former, loved the sandy levels of the New Jersey coast. But with subsidence and the woodman's axe very little of these sheltering copses of evergreens is left. Forty years ago an occasional pair of mockers has been known, even in the central part of the State by a stream in a deciduous tkicket, with catbriers interlaced. But the bird even then was rare—and is much rarer now. The hospitable shelters and food resources on the shores are gone, and the mocker has virtually left also. The bird has yielded to the fiat of geological change—the inevitable law to which the flora and the fauna of the earth must bow.

Our position is not that these birds can no longer live in New Jersey, but that the situation is less inviting than formerly; in a word, the bird life is harder. As to shelter and food, the old summer home has become less hospitable. There is a third factor beyond reach in this discussion, that of climate. True, we do know something of this as caused by the denuding of the land of its native forests; but we know nothing of that climate when the shores of the State, far-reaching into the sea, hugged more closely the thermal Gulf-stream. It will appear too, that we have taken no note of the effect of contact with civilization, which in the main is less conservative than even geologic change.

In the dialectics the principle is accepted that the exception may establish the rule. This, though often true in the mental realm, is but rarely so in that of the physical. Hence it is not only interesting but quite remarkable to find our position fortified by a geological exception, almost on the spot which has come directly under our review. Raritan Bay is in part bounded by the little peninsula of Sandy Hook. While the main is suffering from subsidence of the land and denudation

of the forests, Sandy Hook is increasing in both these respects.

It is lengthening out without narrowing, and maintaining, protected from the axe, a dense and increasing growth—a fine virgin forestage on its sandy beaches of the very tree flora which has so nearly departed from the flats of the State. We have there also at least nearly the climate which with such shelter prevailed over the mainland, where now is the inhospitable bleakness of the naked beach. Æolic action is keeping up an undertow on the coast line, carrying to the Hook and depositing a part of the very material which subsidence and tidal wash is stealing from the shore southward. And so dense is the growth of cedars, with grand outliers of the crimson berried hollies, that not only are these evergreen groves opulent in food, but also practically impervious to the winter winds. Here are rookeries of crows, which almost blacken the air as they return in the evening from their daily foraging. Here, too, are robins by “the thousands,” both summer and winter. And here too in this bird paradise has our *Mimus polyglottus*, summer and winter, as far back as the memory of man goeth, found a hospitable home. With warm housing and a generous board a fig for “the sunny South.” With desire satisfied the migratory instinct has died out.

Let me close with a little avian episode. At Sandy Hook is a military establishment for cannon practice and testing the new monster ordnance and projectiles. So bold and familiar are these birds that they seem not to mind the flying and exploding shells. The wife of the superintendent, having found a nest of mocking birds, made it frequent visits, to which the parent birds seemed not to object. The lady’s interest in her find increased, and when the young became fledglings she removed them from the nest to a cage and brought them up as pets. To her surprise the old birds kept near the young ones, becoming regular visitors, especially at feeding time, thus sharing with the young the lady’s bounty. Their tameness became remarkable. The fully feathered young were allowed their freedom, and parents and offspring would betake themselves to the grove, but would return on call of their benefactress at feeding time, when would ensue a scene of interest

often witnessed by the officers. At the summons—"Mockie, Mockie, Mockie," the entire family would come and alight, even upon the lady, accepting her hospitality and permitting her caresses. All this was kept up through the entire winter. In March, 1888, occurred the great blizzard. This fearful snow storm invaded the retreat of the birds, interpenetrating the hitherto impenetrable asylum. So soon as the storm had subsided the lady went to the woods to look up her little avian friends. Her customary gentle call resounded through the dense grove. But no response came from the mockies. At last her pets were found on the white ground—dead! Thus, too, it befell many others in the colony, which was then on the increase. Happily a remnant survived the storm, so that still, representatively, *Mimus polyglottus* occupies this little elysium so typical of the once grander New Jersey home of his ancestors.